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SUPREME COURT

No. 05-1056

IN THE

Supreme Court of the United States

MICROSOFT CORPORATION,
Petitioner,

v.

AT&T CORPORATION,
Respondent.

On Writ of Certiorari to the United States Court of Appeals for the Federal Circuit

BRIEF OF AMAZON.COM, INC., MENTOR GRAPHICS CORPORATION, AND WACOM TECHNOLOGY CORPORATION AS *AMICI CURIAE* IN SUPPORT OF PETITIONER

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QUESTIONS PRESENTED

The questions presented are:

(1) Whether digital software code—an intangible sequence of "1's" and "0's"—may be considered a "component[] of a patented invention" within the meaning of Section 271(f)(1); and, if so,

(2) Whether copies of such a "component[]" made in a foreign country are "supplie[d] . . . from the United States."

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INTEREST OF *AMICI CURIAE*[1]

Amicus curiae Amazon.com, Inc., is an e-commerce technology leader whose engineers develop innovative designs for the operation of Web stores, and specify those designs using digital software codes. From the United States, Amazon.com transmits some of its engineers' designs, in the form of digital software codes, for use by foreign Web store computers.

Amicus curiae Wacom Technology Corporation is a leading provider of pen-enabled computer tablets and digitizer software. Digital software codes developed by Wacom engineers in the United States are distributed worldwide, via the Internet and via compact discs.

Amicus curiae Mentor Graphics Corporation is a leading provider of Electronic Design Automation (EDA) software used to design and verify electronic design information. Mentor creates software in the U.S. and distributes copies of its software worldwide on compact discs and over the Internet.

Transmitting digital software codes from the United States does not supply a single molecule of any foreign computer from the United States. Stated differently, a computer assembled from entirely foreign parts does not contain a component supplied from the U.S. even when that foreign computer runs software code written in the U.S.

The Federal Circuit has ruled, however, that such engineering design information—expressed in machine-

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[1] Letters of consent to the filing of *amicus* briefs in support of either party were filed with the Court on November 30, 2006, pursuant to Rule 37.3. Pursuant to Rule 37.6, counsel for *Amici* states that no counsel for a party authored this brief in whole or in part. Further, no person or entity, other than Amici or their counsel of record made a monetary contribution to the preparation or submission of this brief.

executable digital codes—henceforth will be considered a "component" of a patented machine under 35 U.S.C. § 271(f), imposing patent infringement liability risk on those who transmit the digital codes from the U.S. This, *Amici* respectfully submit, is a scientifically unsound and disruptive judicial expansion of U.S. Patent Law. Engineering design information—having no mass or molecules—is fundamentally different from a physical machine part. U.S. engineers develop digital software codes to communicate information. The information is stored by the engineer on disc and transmitted to the manufacturer either electronically or by transporting the disc. When the manufacturer transmits the information to the final machine (without installing the transport disc in the machine), not a single molecule of the engineer's original storage disc is transferred with it. The U.S.-created information is there, but the machine itself is comprised of entirely foreign-made components. *Amici's* interest in this case is to see overturned this scientifically unsound judicial expansion of U.S. patent law that disrupts wide swaths of the U.S. information economy.

SUMMARY OF THE ARGUMENT

Patent Law rests at the intersection of law and science. It is of the utmost importance to those regulated by Patent Law that the courts applying the law abide by scientific truths. Here, it is vital that the Court carefully distinguish between information and matter in applying Section 271(f).

The Court should answer Question No. 1 in the negative, and reverse the Federal Circuit's expansion of Section 271(f), for the following reasons.

A. The Common Sense "Molecule Test" Supplies The Answer: If every part of a machine assembled in China came from China, then no component of the machine was supplied from the United States. This remains so even if the unique pattern of threads on a Chinese screw in the machine was designed by a U.S. engineer. No matter where their unique arrangement was invented or dictated, if each molecule in the machine was supplied from outside the U.S., then no component was supplied from the U.S. In the present case, Microsoft did not supply even a single molecule of the foreign machines at issue. Section 271(f) regulates only those who supply a component of the patented machine from the U.S. Thus, common sense says that it does not cover Microsoft's actions in this case.

B. The Statutory Language of Section 271(f), "Component of a Patented Invention," Requires The Same Answer: The meaning of "supplies ... from the United States ... components of a patented invention" in Section 271(f) depends, of course, on the meaning of "patented invention" and "component." "Patented invention" is defined in 35 U.S.C. § 101, and requires a physical thing or physical method. A patent does not protect even the most useful information; rather, it protects physical embodiments of ideas and designs. The word "component" means "constituent part." The constituent parts of a physical object are themselves physical matter. (All the information in the world cannot constitute a single molecule.) A "component of a patented invention," being a constituent part of a physical thing, is, therefore, itself a physical thing. Thus, Section 271(f) regulates the supply of physical components from the U.S., and does not cover Microsoft's actions in this case.

C. A Special Rule For Software Would Be Scientifically Unsound: Computer-Aided-Design and Computer-Aided-Manufacturing ("CAD/CAM") digital code

designs are used by computer-controlled machines to manufacture machine parts outside the U.S. all the time. No one has suggested that Congress intended Section 271(f) to regulate the export of such CAD/CAM codes. But, software is simply another form of digital code design. It makes no sense to allow the export of digital CAD/CAM codes (dictating an infringing machine design) but prohibit the export of digital software codes (dictating an infringing computer design).

Software codes dictate the precise patterns on computer discs, e.g., the pattern of pits and lands on an optical CD. Those patterns perform useful functions, and can be used to replicate another disc with the same patterns. The same is true of CAD/CAM codes. They dictate the precise patterns on a machine part, which patterns perform useful functions and can be used to replicate the patterns in another product. (See Figure 1, depicting pits and lands on a disc and a computer-controlled tool forming patterns on a machine part).

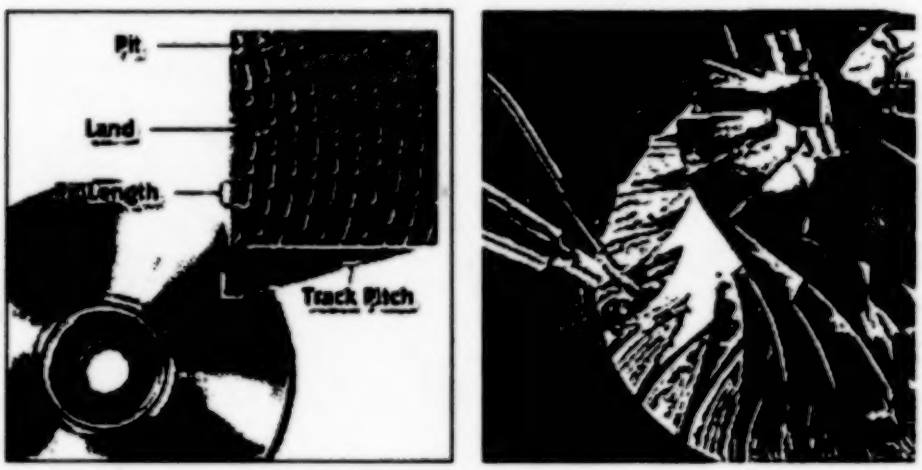

Figure 1

There is no reason to treat software codes and CAD/CAM codes differently under Section 271(f).

D. The Lower Courts Erred By Conflating Physical Things With Their Design Information: The fundamental difference between a physical thing and the design of that thing is sometimes overlooked. The design of a 747 Jumbo Jet weighs nothing. It is information, not matter. All of the CAD/CAM and software codes ever invented, taken together, weigh nothing. The lower courts in this case erred by conflating things (e.g., computer discs) with the engineering design information for those things (e.g., digital software codes). They ruled as if a miniaturized physical set of zeroes and ones were manufactured in the U.S. and then exported and assembled into foreign computers. That, of course, is not how it works. The zeros and ones are logical constructs used to describe a desired physical design. They are not themselves physical. Viewing a hard disk or a screw under a microscope will find no zeros or ones, even though zeros and ones appeared throughout the computer codes used to manufacture that hard disk and that screw.

ARGUMENT

I. COMMON SENSE SHOWS THAT A FOREIGN MACHINE PART IS STILL FOREIGN EVEN IF ITS COMPUTER-READABLE DESIGN IS FROM THE U.S.

As noted, if a machine is assembled abroad entirely from parts made abroad, then no one would say that a component of the machine was made in the U.S., even if one of the parts was designed in the U.S. This is as true for computers as for other machines. An optical disc made in China from molecules supplied from China, is a Chinese optical disc, even if its pits and lands are arranged in a

computer-readable pattern that encodes (stores) a software program, CAD/CAM codes, song, or other information supplied from the United States.

This "common sense" answer is illustrated with the following two-part hypothetical assembly of a French key and lock.

Part I: A French key has a unique pattern designed to fit a matching pattern in a French lock's mechanism. Both the key and lock are made in France, entirely from materials made in France. Not a single molecule of the key or lock is traceable to the U.S. (See Figure 2).

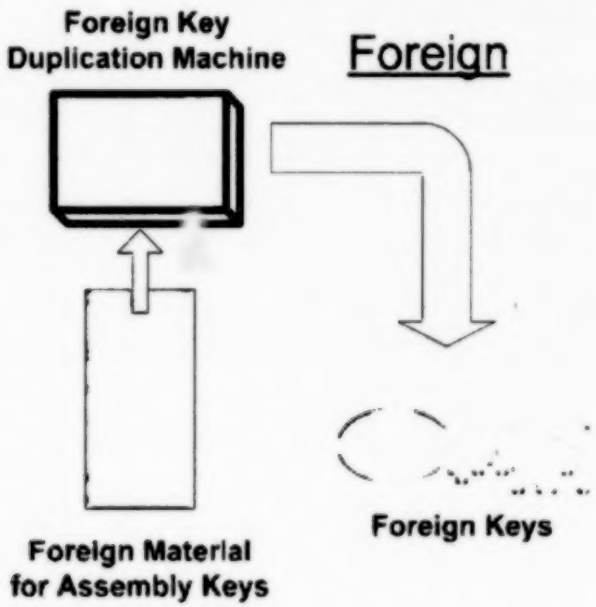

Figure 2

No one would argue that this "key" component of the key-lock assembly was supplied from the U.S., or that Section 271(f) applies.

Part II: Now consider a new fact: the unique pattern of the French key was supplied from the U.S. This pattern (an example of engineering design information) was conveyed from the U.S. in one of a variety of manners. For example: (1) a U.S.-made master key is exported to France where its unique pattern is decoded and duplicated automatically by an electronic key duplication machine to make the French key (see Figure 3), or (2) CAD/CAM computer codes are e-mailed from the U.S. to France where they are used to program a machine to manufacture the key to the unique design specified by the U.S. engineer. No matter how the U.S. pattern is supplied, all of the molecules (matter) of the replicated French key are still supplied entirely from France. Only the design information was supplied from the U.S. and since information is not a physical object, Section 271(f) plainly does not apply.

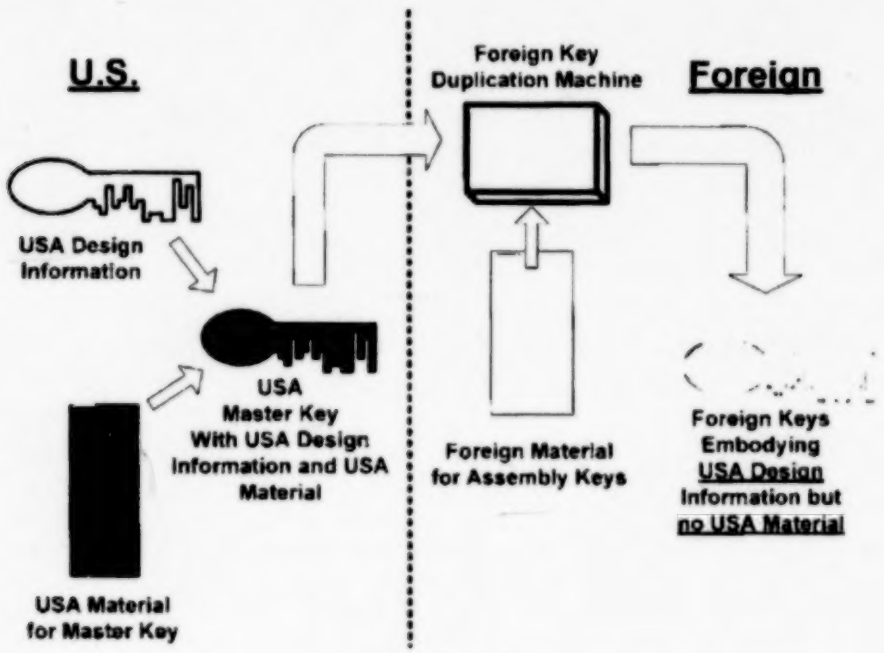
U.S.
Foreign Key Duplication Machine
Foreign
USA Design Information
USA Master Key With USA Design Information and USA Material
USA Material for Master Key
Foreign Material for Assembly Keys
Foreign Keys Embodying USA Design Information but no USA Material

Figure 3

As this hypothetical illustrates, the above-proposed "Molecule Test" provides a bright line test for anyone concerned about possible liability under Section 271(f): if the foreign assembly does not include a single molecule exported from the U.S. by the potential defendant, then Section 271(f) does not apply. There rarely, if ever, will be uncertainty on this point.

II. BECAUSE A "PATENTED INVENTION" MUST BE PHYSICAL, SO MUST A "COMPONENT" (CONSTITUENT PART) OF A "PATENTED INVENTION"

The issue before the Court is one of statutory construction. The statutory language provides, in pertinent part: "Whoever ... supplies ... from the United States ... any component of a patented invention ... intending that such component will be combined outside of the United States ... shall be liable as an infringer." 35 U.S.C. § 271(f)(2).

"Component": A "component" is "1. A constituent part" (Webster's Third New International Dictionary at 466 (1993)). "Constituent" means "3a. a thing, person, or organism that along with others serves in making up a complete whole or unit: an essential part...." (Id. at 486).

Thus, a component is not just any "part" of something else, it is a "constituent" part. Information cannot be a component of matter because all the information in the world cannot constitute even a single molecule of matter. Matter occupies space, has mass, and is made up of atoms and molecules and parts thereof. Matter is "2a. The substance of which a physical object is composed...." (Webster's Third New International Dictionary at 1394 (1993)). Information, on the other hand, does not occupy space or have mass. Information is "1d: the communication or reception of

knowledge or intelligence, 2: something received or obtained through informing: as a: knowledge communicated by others or obtained from investigation, study, or instruction...." (Id. at 1160.)

"Patented Invention": Although an intangible (non-physical) idea can be an "invention," it cannot be a "patented invention." Rather, physical embodiments of an idea (e.g., a computer readable media storing software code), or physical processes, may be patentable. See 35 U.S.C. § 101 ("Inventions patentable: Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, ..., may obtain a patent therefor ...."); Gottschalk v. Benson, 409 U.S. 63, 93 S. Ct. 253, 34 L. Ed. 2d 273 (1972) (an algorithm is not patentable); Rubber-Tip Pencil Co. v. Howard, 87 U.S. 498, 507 (1874) ("An idea of itself is not patentable...."). The Patent Office has described this requirement that a patented invention be physical in the context of computer software:

> Similarly, computer programs claimed as computer listings per se, i.e., the descriptions or expressions of the programs, are not physical "things." They are neither computer components nor statutory processes, as they are not "acts" being performed. Such claimed computer programs do not define any structural and functional interrelationships between the computer program and other claimed elements of a computer which permit the computer program's functionality to be realized. In contrast, a claimed computer-readable medium encoded with a computer program is a computer element which defines structural and functional interrelationships between the computer program and the rest of

> the computer which permit the computer program's functionality to be realized, and is thus statutory. See Lowry, 32 F.3d at 1583-84, 32 USPQ2d at 1035. Accordingly, it is important to distinguish claims that define descriptive material per se from claims that define statutory inventions.

U.S. Patent & Trademark Office, Manual of Patent Examining Procedure (M.P.E.P.) § 2106.01, Part I at 2100-18 (8th ed., Revision 5 (August, 2006)) (emphases added).

"Component of a Patented Invention": Since information cannot constitute a physical object, and a "patented invention" requires a physical embodiment, software codes (e.g., a binary sequence of numbers) cannot be a component of a patented invention.

III. THERE IS NO SCIENTIFIC BASIS FOR CREATING ONE RULE FOR SOFTWARE CODES, BUT A DIFFERENT RULE FOR CAD/CAM CODES

All useful products have a useful design and thus embody (store) some useful design information. This means that the issue before the Court is of universal concern to our nation's information economy. If design information henceforth will be deemed a "component of a patented invention," then all product designs of all engineers, not "just" software engineers, are implicated.

Computer-aided manufacturing (CAM) programs use 3D models of machine parts generated using computer-aided design (CAD) programs, to create computer numerically controlled (CNC) codes that instruct numerical controlled machine tools how to manufacture the parts. CNC codes have

been used to manufacture untold billions of parts around the world since the 1950s. *See generally* http://en.wikipedia.org/wiki/CNC and http://en.wikipedia.org/wiki/Computer-ided_manufacturing (each visited December 12, 2006).

When Congress enacted Section 271(f) in 1984, surely it did not intend to impose liability on engineers exporting their machine-executable-code engineering designs for cams, screws, gears and other machine parts. Yet, the interplay between a physical thing made up of molecules, on the one hand, and the design of that thing (which design may be formulated and transmitted using computer-readable computer codes) is the same for computer discs as it is for:

- keys,
- tire treads,
- airplane wings;
- turbine blades;
- gears;
- screws;
- integrated circuits;
- etc.

Sometimes a product's engineering design information is communicated by shipping a physical master of the product, rather than electronically transmitting CAD/CAM codes. A computer-controlled machine measures the exact patterns of the master gear, master key, or other master part and creates a digital file representing those patterns. That file is then used, as above, to manufacture many copies of the master part. Thus, the master part itself carries machine-readable and machine-executable engineering information (which can be expressed in digital codes)—just like a computer disc. Indeed, as recognized by

the Panel's dissenting Opinion, this was the analytical point of the above "master key" hypothetical (see Figures 3 and 4). As the dissenting Opinion notes, analytically this "master key" hypothetical and the "master disk" facts before the Court are "indistinguishable." AT&T Corp. v. Microsoft Corp., 414 F.3d 1366, 1375-76 (Fed. Cir. 2005).

Whether transmitted electronically or via a "master," the fundamental difference between the non-physical creations of engineers (design information which can be expressed in digital codes) and the physical creations of manufacturers (things made up of molecules) applies in all industries equally. There is no scientific basis for creating a special rule for software digital codes under Section 271(f).

IV. THE LOWER COURTS CONFLATED PHYSICAL THINGS WITH THE INTANGIBLE DESIGN INFORMATION FOR THOSE THINGS

The district court in this case failed to distinguish between information and matter. The district court failed to make this distinction on two separate issues: (1) what can be patented, and (2) what did Microsoft contribute to the patented assemblies.

First, on the question of what can be patented, the district court stated that software can be patented, without analyzing whether software information (expressed, e.g., in digital codes) can be patented. (As quoted *supra* at pp. 9-10, the Patent Office recognizes that software information cannot be patented.) For example, the district court stated: "It is well-established, however, that software can be a component of a patented invention or infringing device" AT&T Corp. v. Microsoft Corp., Civ. No. 01-4872 (WHP), 2004 WL 406640, at *4 (S.D.N.Y., Mar. 5, 2004), citing In re Alappat,

33 F.3d 1526, 1545 (Fed. Cir. 1994). But In re Alappat held the exact opposite. It held that a computer – not software – may be patentable subject matter because it is a machine, and referred to the parts of the machine as being "structures." Id. at 1541.

Second, on the question of what Microsoft contributed to the foreign computer assemblies, the district court used the terms "code" and "software" to refer at times to information and at other times to matter. For example, the district court noted "the undisputed fact that the object code is originally manufactured in the United States" AT&T, 2004 WL 406640, at *7. Its use of the term "manufactured" suggests that the district court had in mind physical discs, as products, not information, are "manufactured." But its reference to the "object code" elsewhere may be directed to software information (e.g., a sequence of binary numbers), see AT&T, 2004 WL 406640, at *4 ("software or object code contained on the golden master disks").

The Federal Circuit made the same mistake. It failed to carefully distinguish between things and the design of those things. Thus, it mistakenly analogized software information to liquids and gases. AT&T Corp., 414 F.3d at 1370-71. Software information is not akin to liquids and gases because it has no mass and no molecules. Its information content is transferred from disc to disc without a single molecule being transferred—just as the information in this Brief is transferred to a photocopy without a single molecule being transferred.

Similarly, the Federal Circuit referred to the "replicable nature of software," id., at 1370, as if it is fundamentally different from other digital code designs. Yet, all digital engineering design codes—whether for a screw, a 747, or a computer hard disk—are equally replicable.

Again, it is vital that Patent Law be applied in a scientifically sound manner and that here the Court carefully distinguish between information and matter, in applying Section 271(f).

CONCLUSION

For the foregoing reasons, the Court should answer Question No. 1 in the negative, and reverse the Federal Circuit's expansion of Section 271(f).

December 14, 2006

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